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NEW HAMPSHIRE COLLEGE
Agricultural Experiment Station

FRUIT GROWING

WITH A

SELECTED LIST OF VARIETIES

FOR NEW HAMPSHIRE

Variety Plum Orchard (College).

BY F. WM. RANE

NEW HAMPSHIRE COLLEGE
OF
AGRICULTURE AND THE MECHANIC ARTS
DURHAM

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

AGRICULTURAL EXPERIMENT STATION

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I.

CONDITIONS ESSENTIAL TO SUCCESS IN FRUIT CULTURE

F. WM. RANE

Soils adapted for growing almost any kind of tillable crops and in good heart will grow fruits. The mistake is often made that the best of our farm fields are too good for fruit and should be retained for agriculture. No land is too good for fruit growing, and when one realizes that the profits derived from fruits usually average from two to ten times that of general agricultural crops on the same area, why should they not be given first place? Fruits do and will grow on our rocky hillsides and worthless fields, but this does not prove that for best results they should be planted in such situations. When preparing the soil to receive fruits, extra attention should be given it. The deeper the soil is stirred and the better its physical and mechanical condition the better the results to be obtained. When the trees or bushes are set they must have continued care and attention. The appearance of the trees and bushes themselves usually tells the story. If the plants are given proper nourishment and culture, they will make quick growth and rapid development, but if allowed to shift for themselves, they become stunted and eke out a miserable and usually an unprofitable existence. Many plow up a field and set out a fruit plantation one season; the next it is in sod and forgotten. In about eight years, when apple trees, for example, should be coming into bearing, instead of picking fruit, it is often a hard matter to find the trees themselves. Fruit trees, like animals, are living things, and unless fed and cared for they are not to blame for not doing their best. Animals can forage for themselves, if neglected,

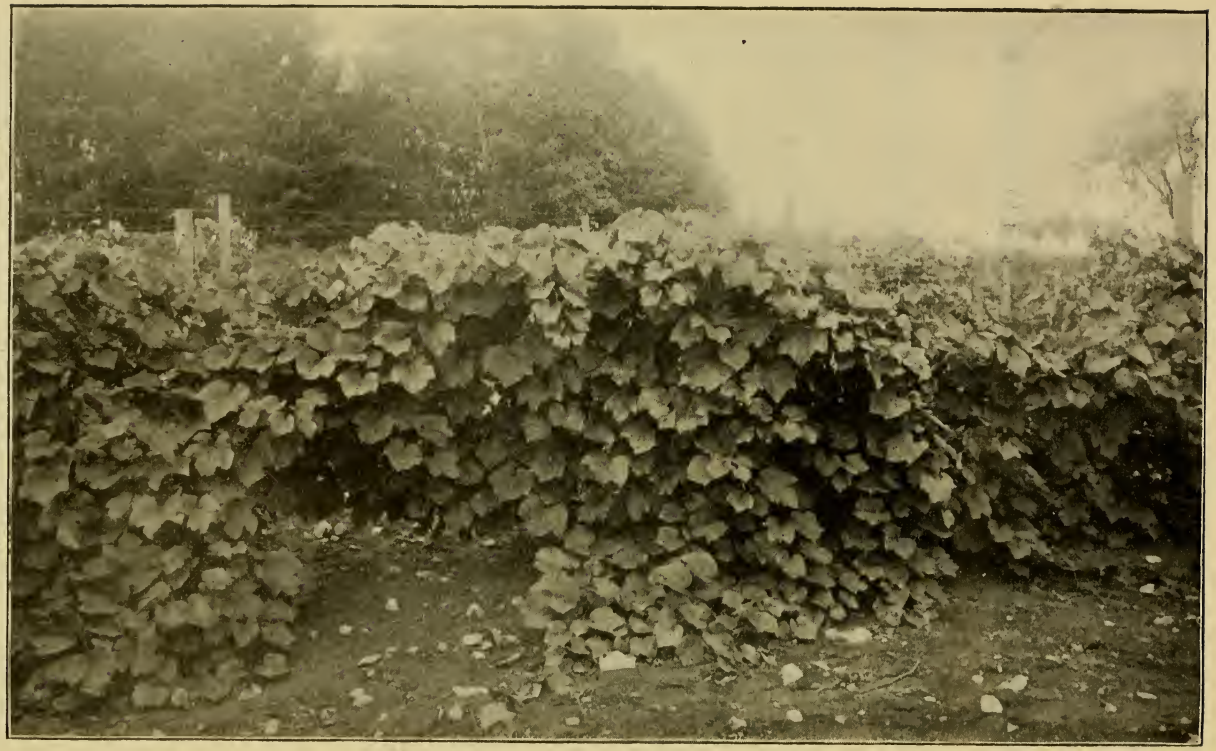

FIG. 2.—Thrifty growth of the grape in New Hampshire. College Vineyard. Moore's Early Variety.

to some extent, while plants cannot, hence the more care needed.

Pruning and training should be well understood. Have in mind the shape and form desired, and conform the plant to it by regular, annual pruning. By never allowing ill-shaped limbs or branches to become established, the cutting off of large limbs is obviated.

Spraying for both insect enemies and fungous diseases is a part of the fruit business. If one does not intend to post him-

FIG. 3.—Varieties of Pears.

self on how to combat these foes, he had better not attempt fruit growing at all. Considering the amount of literature and general information so readily available, there is little excuse for not being informed about the commoner troubles.

Good drainage, natural or artificial, is essential to success. Drained soils give ideal conditions for root development. They can be worked earlier in the spring, and in either wet or dry seasons are little affected and give uniform conditions.

The kind and amount of tillage for fruits are debatable questions. Tillage is a means to an end. The main thing desired is fruit production, and in order to get results the trees or bushes one is growing for that purpose must be considered in that light. Clean culture, the Hitchings method, or any other culture or method, is good in proportion as to results obtained. When trees are young they must not be allowed to become dwarfed. Sufficient tillage or proper mulching, fertilizing, and handling to ensure proper growth

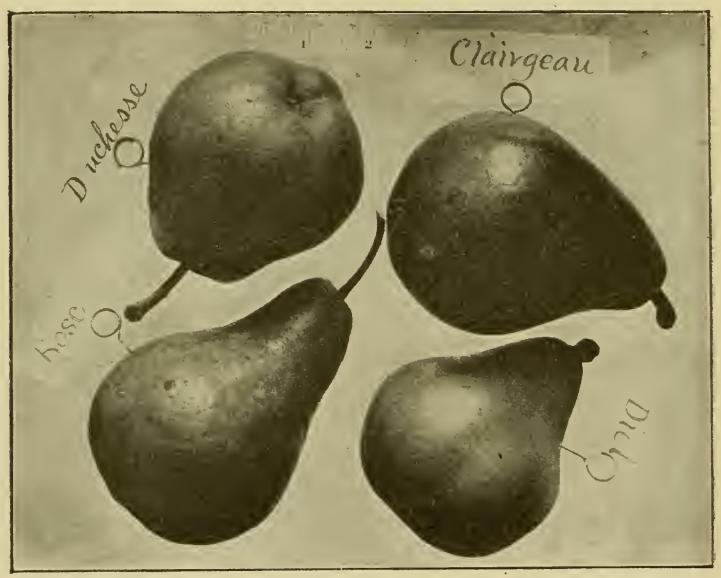

FIG. 4.—Varieties of Pears.

if the tree is young, or for sustenance and fruitfulness if a mature tree, are what is wanted. Become a good judge of plant life, and the question of tillage will naturally solve itself. Conditions, soils, locations, etc., vary so much that definite recommendations are impracticable. When and how often to plow, cultivate, fertilize, etc., therefore, will depend upon one's best judgment. Only be sure that one exercises and executes this and results will be in proportion.

Soils that are well drained and land that is deeply worked

offer inducements for trees to send their roots deep down and fortify themselves against drought. The habits of orchards are established according to their earlier treatment, hence this should be done well.

Generally speaking, all cultivation of fruit plantations should stop as early as the latter part of summer. Our New England winters are cold, and fruit trees should be well matured to withstand them. By slightly rounding up the soil, rendering good surface drainage at the last cultivation, giving it time to become firm and well compacted, conditions result by which the trees will come through the winter in good shape. The sowing of some green crop, such as clovers, vetches, etc., the so-called cover crop, for keeping the soil

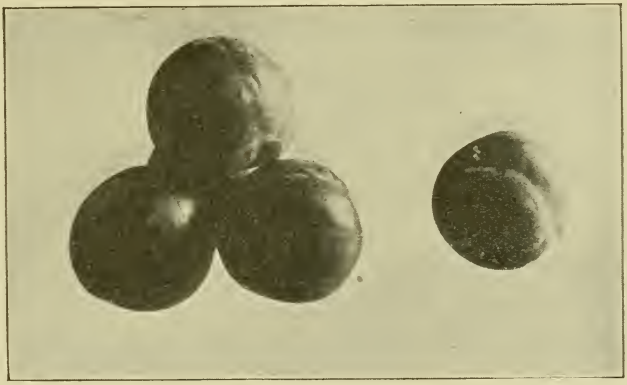

FIG. 5.—Burbank Plums (Japan).

from washing, and serving as a protection in winter, is recommended.

Can we afford to grow other crops in our orchards or fruit plantations? When the plants are young and do not require the full use of the land, good judgment seems to tell us that cultivated crops are allowable, and will assist in paying for the expense of cultivation and investment. Whenever the crop grown is in any way detrimental to the fruit plantation it is a mistake. A hoed crop is preferable to any cereal or grass crop. The latter usually robs the trees of moisture and does not allow of cultivation. Even hoed crops should not

stand above the tree roots, and should be grown early in the season only. When crops are grown among fruits they should not take from the food supply of the soil, but leave it in better condition than before. Feed the land for both crops. I have seen orchards that have been under such high culture that they produced both a profitable hay and apple crop at the same time for a period of years, but these are exceptional. When the trees reach maturity they should not divide their

FIG. 6.—Chabot Plums (Japan).

nourishment with other crops, but conserve it for fruit production.

The best fertilizers for the young fruit plantation are those rich in all the essentials of growth, as our barn manures and complete fertilizers, but bearing plantations do best when a liberal application is made of fertilizers composed largely of potash and phosphoric acid. These latter ingredients go largely to supply the tree or bush with elements necessary for fruit production. While it is growth that is wanted in case of the young tree, it is fruit that is desired in the mature tree,

and comparatively little growth. Ashes and muriate of potash are the most common sources of potash. One to two tons of wood ashes, or 400 to 800 pounds of muriate of potash, are considered a good application per acre for bearing orchards.

Phosphoric acid is the fertilizer next in importance to potash, and the bone fertilizers, plain high-grade superphosphate, and Thomas slag are the common sources. Three to five hundred pounds is a good dressing.

FIG. 7.—A Chabot Plum Tree in fruit. Currants and gooseberries grown between the rows.

Nitrogen promotes growth. Be cautious, therefore, to use but little of it for fruiting plants. Sufficient nitrogen can be obtained through tillage, and nitrogenous green manures. Green manures apply humus to the soil and improve its fertility.

In a nut shell, fruit culture is growing fruits under rational methods and giving the plants under consideration as near ideal conditions as we can. Culture, adaptable varieties, spraying, fertilizing, etc., must be studied, and practised if we expect results.

II. WHAT VARIETIES TO PLANT

There is much inquiry at the present time for information from the Experiment Station as to what varieties of fruits are the best for planting. To answer this demand to the satisfaction of all is not an easy task. There are many varying

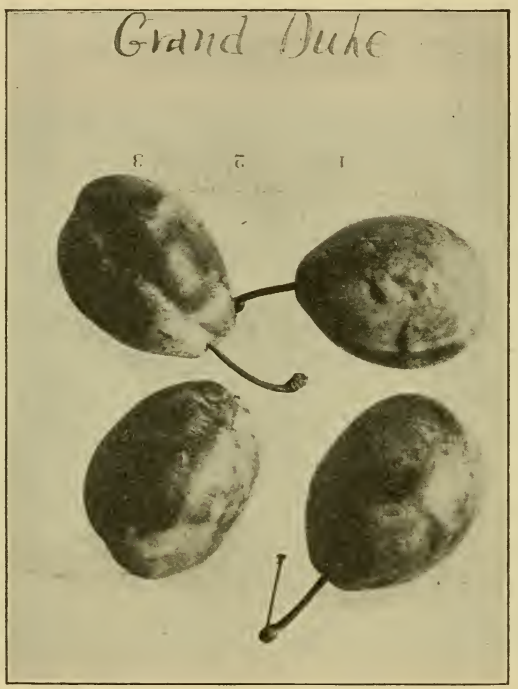

FIG. 8.—Grand Duke Plums.

conditions that enter into the case, as adaptable soils, locations, tastes, etc., rendering the task a perplexing one. After having been connected with the horticultural interests of the state for some time, however, the writer feels he can make no mistake in offering the following recommendations:

These are only suggestive and while, in our judgment, they are the best, they may be somewhat altered to meet one's conditions and tastes. They will form a good foundation to work from.

We little realize as yet the possibilities of New Hampshire as a fruit state. The writer has traveled from one end of the state to the other, and is willing to go on record as saying that profitable fruit of some sort or other can be grown on every farm in the commonwealth. Many fruits are sadly neglected which, if their culture were better understood, would not only contribute to pleasant and gainful occupations but provide us with the good things that are ours by right. We need not depend upon western New York for our grapes entirely. Mr. J. E. Bachelder of Wilton has been growing a few acres for years at a good profit. Peaches are a profitable crop in a number of sections where tried in the southern part of the state, and doubtless could be made a success in many others, if attempted under modern methods. Apples grow everywhere, even in the White Mountains, provided proper selections are made and culture given. The Baldwin is tender in the northern portion of the state, but here the Bethel, Wealthy, and other hardy varieties of Russian blood or origin are substituted. Cherries, even the old-time hardy sour varieties, are seldom seen while they can be easily grown. Plums are coming in, but should receive more attention. Pears have a straggling existence, but are seldom grown as a commercial crop. Small fruits of all kinds do well everywhere in the state, and our markets are too often filled with blackberries, raspberries, currants, gooseberries, and strawberries largely from without the state, when they should be coming from our own farms and gardens.

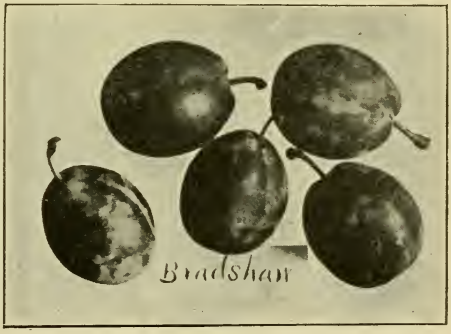

FIG. 9.—Bradshaw Plums.

It is not our intention to go into the discussion of fruit culture in detail at this time, as much is to be had from the current literature along this line. If special information is

desired, it is best to write to the Experiment Station direct, and we can then recommend the books or bulletins best treating the case in question.

If any one has varieties of fruits such as apples, the names of which they do not know, send a few specimens to the Experiment Station, and see if they can be identified. The horticultural class in fruit growing here at the college had over one hundred varieties of apples for study the present season. Sometimes varieties are wrongly named also.

Above all, let us set out enough fruit trees for our family use, if for no other purpose, and take a little pride in having a variety of them. Our farm homes are what we make them, and if we do not have plenty of fruits it is our own fault.

In making the following list we realize that there are many splendid varieties that ripen at the same time as those listed, and compete with them closely. We have selected the lists with the idea of season and market as well as home consumption, and limited the varieties to as few as we could and at the same time meet all requirements. In strictly commercial orchards we should recommend that the list be reduced to a very few varieties, not using more than from one to three varieties from each list. The mistake of selecting too many varieties is a common one. For family use a few trees of apples, for example, can be grafted with as many varieties as one cares for, thus allowing the remaining trees of the orchard to be alike.

FIG. 10.—Niagara Plums.

THE APPLE

Our list of apples for general recommendation is the following, named in order of importance:

Summer

Williams,
Red Astrachan,
Oldenburg.

Autumn and Early Winter

Gravenstein,
McIntosh,
Wealthy,
King,
Hubbardston,
Grimes Golden.

Winter

Baldwin,
Spy,
R. I. Greening,
Red Canada (Nonesuch),
Roxbury Russet,
Ben Davis,
Jonathan,
Pewaukee,
Granite Beauty,
Bethel.

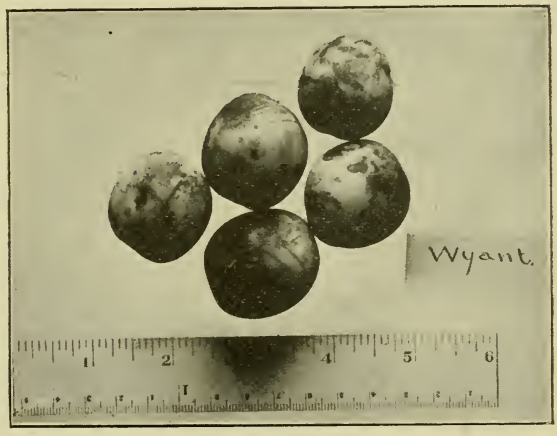

FIG. 11.—Wyant Plums.

For a sweet apple the *Tolman*, although green in color, we believe to be the best.

For the northern part of the state I would substitute Bethel for Baldwin to head the list of winter varieties with Pewaukee second.

From consultation with leading commission men and apple buyers we find that a red apple is preferred upon the market to any other. While there are occasional exceptions, other

things being equal, red varieties will bring from fifty cents to one dollar and a half more per barrel.

Standard apple trees should stand about 40 by 40 feet apart when mature. Some varieties do not grow as large as others, and may be set closer but this is usually a mistake.

FIG. 12.—A branch of the Mountain Rose Peach Tree, as growing in New Hampshire.

Fillers, or apple trees that come into bearing at an early age, are being set quite commonly of late. These are set equidistant between the standard trees and are cut out before the latter become crowded. The peach, plum, dwarf pears, etc., are also more or less used for the same purpose.

THE PEAR

The list of pears we recommend for planting is as follows:

Anjou,	Vermont Beauty,
Bosc,	Onondaga,
Sheldon,	Lawrence,
Clairgeau,	Duchess,
Seckel,	Bartlett.

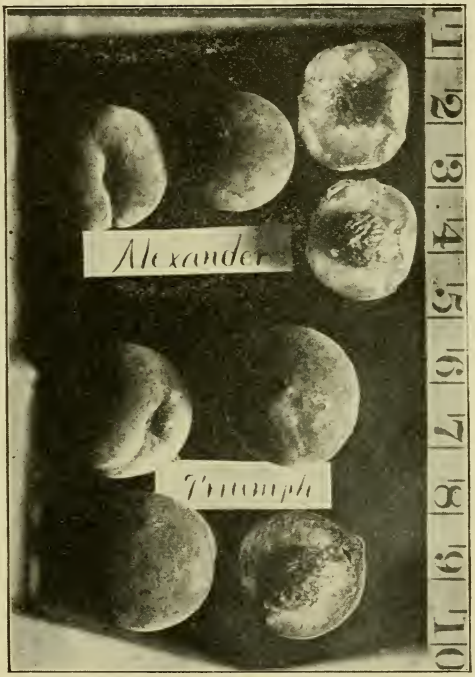

FIG. 13.—The Alexander and Triumph Peaches (Early Varieties).

Pears are either dwarfs or standards. Dwarfs are the results of budding pears on quince stocks.

Standards are planted twenty to thirty feet apart each way, depending on the vigor of the variety. Dwarfs are planted ten to fifteen feet apart each way.

Dwarf varieties are "coming in" in many fruit sections. Early bearing, ease of pruning, spraying, and picking, etc., are some of the claims made for them.

For commercial purposes choose fewer varieties and hence have more of the same kind. Pears, especially dwarfs, enjoy high culture.

PLUMS

Plums are grown in a limited way in most sections of the state. There are many varieties to select from, all of which

FIG. 14.—The Moore's Early Grape (Dark Blue color).

do well. The plum is very valuable for canning as well as a dessert fruit. The following list we recommend:

Burbank,
Abundance,
Lombard,
Bavay (New Green Gage),
Wickson,
Chabot,
Pond,
Golden Drop,
Grand Duke,
Bradshaw,
Niagara.

Jar for the curculio, cut out and destroy the black knot, and spray with the Bordeaux mixture.

For the colder sections of the state the following varieties are recommended:

Stoddard,	Hawkeye,
Quaker,	Wyant,
Surprise,	Cheney.

A few plum growers recommend the growing of the York State and Fellenberg prunes as plums, claiming that they are

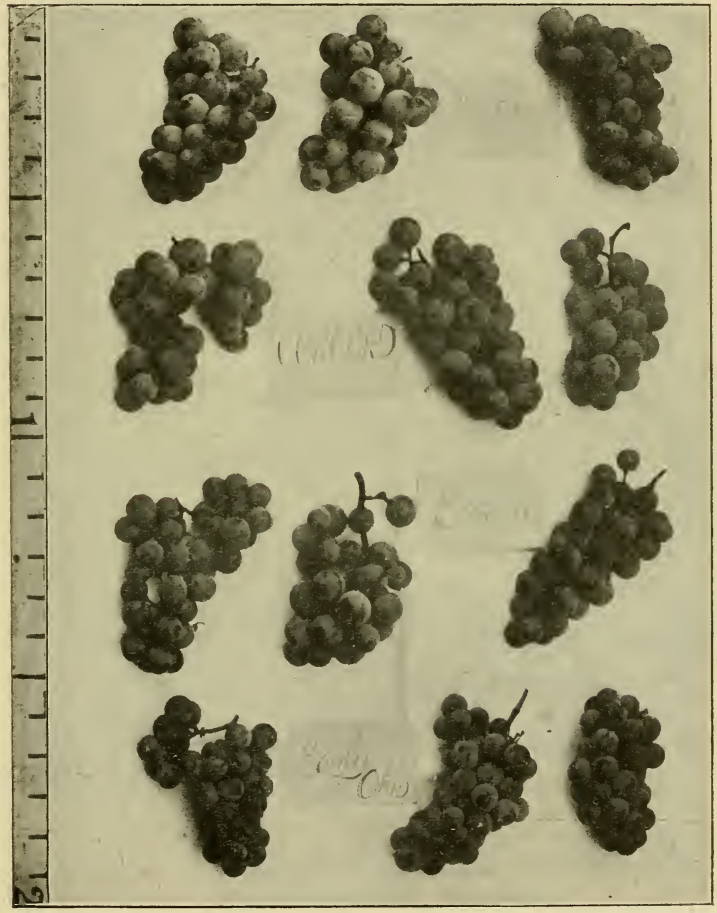

FIG. 15.—Varieties of dark colored grapes: Worden, Concord, Eaton, and Early Ohio.

preferred on account of the easy removal of the pits and less acidity.

The distance for setting plums varies according to the variety, from 12 to 25 feet each way.

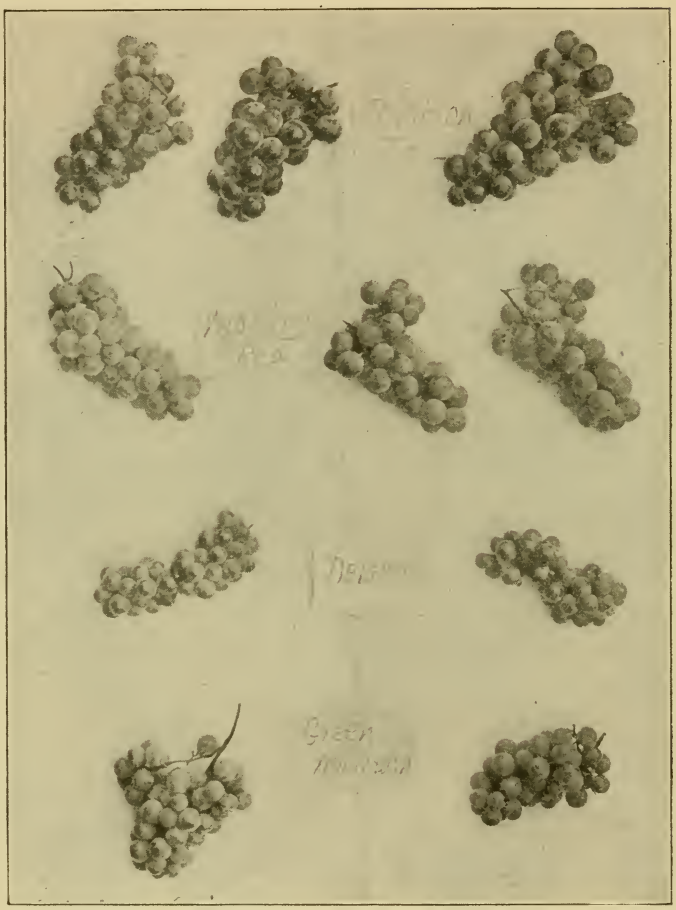

FIG. 16.—First three red or wine color and last white. Brighton, Wyoming, Delaware, and Green Mountain.

CHERRIES

This is a crop well deserving of more attention in the state. The sour or canning cherries can be easily grown, and the demand is far greater than the supply. The following varieties are recommended: Montmorency, Morello, Brusseller, Braune, Bessarabian.

The sweet or heart-shaped cherries are successfully grown only in a limited way in the southern part of the state. These are very delicious fruit, and the following are some of the better varieties: Black Tartarian, Coe's Transparent, Governor Wood, Napoleon, Windsor, Yellow Spanish.

Sour cherries are set from 16 to 20 feet apart each way. Sweet varieties require more room, and should be planted 30 feet apart. The cherry-tree slug is one of the worst insects.

Fig. 17.—The Green Mountain Grape (White color).

Control it by spraying. Other insects and diseases peculiar to the plum also affect the cherry.

PEACHES

Throughout the southern half of the state peaches can be grown more or less successfully. Doubtless this fruit suffers from neglect as much as any grown. When given good culture, we believe that the peach can be made quite an important crop in the state. We have an example of one tree about fifty years of age and bearing a good crop of fruit.

The two varieties that I have found most generally planted and giving good results are the Early Crawford and the Mountain Rose. Oldmixon is also more or less common. The Elberta is highly thought of, and is being quite largely planted. The Triumph is giving good results for an early variety. Foster, Crosby, Stump, Alexander, etc., are also planted more or less.

The usual distance for peaches is 16 to 20 feet apart each

FIG. 18.—The Niagara Grape (White).

way. Clean culture and renewed plantations every six to ten years are recommended for best results.

QUINCES

This fruit is little grown here. Now and then a bush is found on the older estates. The quince is perfectly hardy, with a long season for marketing, not perishable, and if given a little care and modern culture, we believe it will be a success. Fire-blight is the worst disease of the quince. This should be cut out and burned whenever detected. Spray for

the codling moth and leaf-blight, and for the curculio. Borers also must be looked after.

The Orange or Apple variety is the only variety commonly planted. The Champion is a much later variety, but often too late for many seasons in this climate. The Rea is larger than the Orange, but the bush is small and not so productive. The distance recommended for planting is usually 8 to 12 feet each way. If one has plenty of ground, 15 feet is still better.

GRAPES

With some little care in getting the young plants well established, after the first three years of growth the hardier and earlier varieties do well in New Hampshire. If well cared for, the Concord can usually be made to ripen, while those varieties earlier than the Concord can usually be depended upon. Moore's Early, Worden, Eaton, and Early Ohio are among the best black or blue varieties; Wyoming Red, Brighton, and Delaware among the red varieties; and Green Mountain or Winchell, Niagara, and Diamond are the best white varieties.

Grapes are planted 8 to 12 feet apart each way. The common way of training is to use two wires upon posts, the first being eighteen inches to two feet from the ground, and the second two to three feet above this. Number 12 wire is most commonly used. Clean culture, intelligent fertilizing, proper pruning and training, and careful spraying is almost sure to bring results in grape growing.

BLACKBERRIES

This excellent fruit should be planted in rows at least six feet apart, with plants four feet apart in the row. The varieties we should recommend are Ancient Briton, Snyder, and Tyler. These are hardy, productive, and good. The Early Harvest and Wilson are productive varieties and very valuable, but need winter protection.

Blackberries, raspberries, and other bush fruits are usually given annual prunings. The nature of the bush fruits is to renew themselves with new growth, at which time the old canes should be taken out. This work can be done any time after fruiting, but is usually delayed until the following spring,

before growth starts, when the broken and winter-killed parts, etc , can also be taken out.

RASPBERRIES

The variety of red raspberries that stands without any equal and most commonly planted is the Cuthbert. The Marlboro is an old variety that ripens early, and comes next to the Cuthbert as a profitable fruit. The Golden Queen is rich yellow in color, and is sometimes sought after. It is a seedling of the Cuthbert.

Of the blue canes the Shaffer and Columbian are the best. These are supposed to be crosses or hybrids between the red

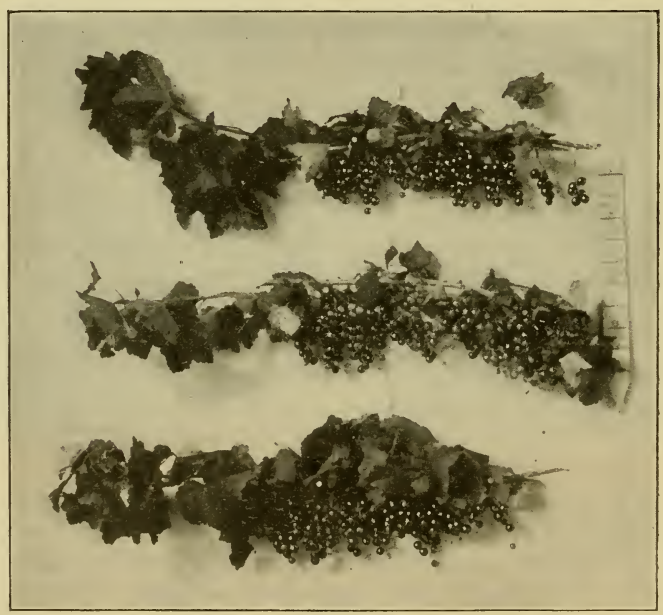

FIG. 19.—Three valuable varieties of Red Currants : Cherry, Wilder, and Fay.

and black cap raspberries. They are very productive, of deep purple color, hardy, and late.

The black cap varieties are not very generally grown, although it is believed they can be made a profitable crop in most sections of the state. Strange to say, they seem to be in

nearly as great demand locally where grown as the red varieties. The main varieties are Kansas, Gregg, Palmer, Souhegan, Older, and Tyler. Plant reds 3 by 6 feet, and others 3 by 8 feet apart.

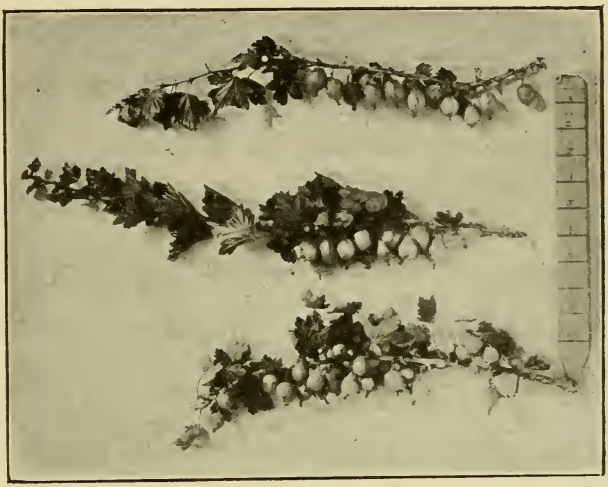

FIG. 20.—Varieties of English Gooseberries: Columbus, Chatauqua, and Red Jacket.

CURRANTS

This fruit, while more or less commonly found in gardens, nevertheless is as much neglected as any fruit we grow. It is commonly recognized that no matter how one mistreats the currant, it still has value. If it will flourish without care, what can we expect from it if given proper culture?

The best varieties of red currants are Wilder, Cherry, and Fay; white, White Grape; black, Black or English currants, Black Naples, Champion, and Lee. The red varieties are what are usually wanted, although we have found the English currants very profitable of late. The currant is best set 4 by 6 feet. Keep the currant worm off with hellebore, and give high culture.

GOOSEBERRIES

Practically the same culture and general handling is required by the gooseberry as given to the currant. The Down-

ing and Houghton, together with improved seedlings, are the principal varieties of American origin. Even the seedlings Pearl and Champion, however, are small, and the varieties of English origin bring the best prices in the market. The drawback to the English varieties is the mildew, but this can be overcome by spraying with liver of sulphur. The Chatauqua, Columbus, Industry, Lancashire Lad, and Keepsake are a good list. The currant worm, if anything, makes its attack on the gooseberry first, and needs the same treatment as when on the currant. The plants are given the same distance as currants, 4 by 6 feet.

STRAWBERRIES

We should recommend for the best list of strawberries the following varieties, which Mr. Geo. F. Beede of Fremont, our veteran New Hampshire grower, places in the following order: Dunlap, Sample, Bubach, and Brandywine. The first and last named are perfect flowering, and the other two are imperfect, requiring a perfect flowering variety to be planted with them for fertilization. Other varieties commonly grown are Clyde, Haverland, Lovett, Beverly, Marshall, Glen Mary, etc. For further particulars regarding strawberry culture, send for Bulletin No. 74 of this station, which is sent free upon application.

FIG. 21.—Varieties of American Gooseberries: Houghton, Downing, and Pearl.

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